

## REMARKS

## Status of the Claims

Claims 1–36 remain pending in the application, Claims 16 and 24 having been amended to correct grammatical and typographical errors.

Claims Rejected under 35 U.S.C. § 103

The Examiner has rejected Claims 1-36 as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,226,005 to Laferrriere in view of U.S. Patent No. 5,613,048 to Chen et al. (“Chen”). Applicant respectfully disagrees for the reasons noted below.

In the interest of reducing the complexity of the issues for the Examiner to consider in this response, the following discussion focuses on independent Claims 1, 16, and 24. The patentability of each remaining dependent claim is not necessarily separately addressed in detail. However, applicant's decision not to discuss the differences between the cited art and each dependent claim should not be considered as an admission that applicant concurs with the Examiner's conclusion that these dependent claims are not patentable over the disclosure in the cited references. Similarly, applicant's decision not to discuss differences between the prior art and every claim element, or every comment made by the Examiner, should not be considered as an admission that applicant concurs with the Examiner's interpretation and assertions regarding those claims. Indeed, applicant believes that all of the dependent claims patentably distinguish over the references cited. Moreover, a specific traverse of the rejection of each dependent claim is not required, since dependent claims are patentable for at least the same reasons as the independent claims from which the dependent claims ultimately depend.

## Discussion of the Rejection of Independent Claim 1

Significant differences exist between applicant's Claim 1 and the cited art of Laferriere and Chen because they do not appear to teach or suggest that in response to a user action, a transformation is performed, or that a real-time rendering of a desired graphical effect is simulated.

In its entirety, applicant's step (b) in Claim 1 recites "in response to one of a user action and an event that indicates the desired graphical effect, performing a transformation two-dimensionally using the plurality of morph maps to produce an output image that simulates the real-time rendering of the desired graphical effect in the image of the object." The Examiner has asserted that a portion of this step, i.e., "in response to one of a user action and an event that indicates the desired graphical

1 effect ... in the image of the object" is disclosed by Laferriere (column 5, lines 35-36), where the  
2 reference teaches that a user selects one or more texture maps for a desired illumination value. The  
3 Examiner also asserts that once an illumination map is determined, the objects can be changed and  
4 rendered, as taught by Laferriere (column 5, lines 20-22). Further, the Examiner indicates that,  
5 although Laferriere fails to disclose morph maps to perform transformations using the morph maps to  
6 produce an output image, in regard to a morphing process, Chen discloses determining a  
7 correspondence or mapping of the points in the image and completing the blending in the morph  
8 process (column 4, lines 1-30), and displaying the image (column 3, lines 35-38). In summary, the  
9 Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of  
10 the invention to include with the illumination maps created by Laferriere, the morph maps stored for  
11 the images as disclosed in Chen, to reduce real-time processing requirements to describe the  
12 correspondence of an entire morph scene.

13 However, it does not appear that Laferriere and Chen teach or suggest that a user action  
14 provokes a transformation that is performed two-dimensionally. The Examiner's first citation in  
15 support of his argument is reproduced below (wherein the portion cited by the Examiner is  
16 underlined):

17       With this embodiment of the present invention for texture mapped surfaces, the  
18 user selects one or more texture maps for which it is desired to determine illumination  
19 values. In SoftImage.vertline.3D, this selection can be accomplished by selecting one  
20 or more texture nodes in the schematic view of the scene definition, although any  
21 other suitable method of selecting a texture picture to be considered can also be  
22 employed, as will be apparent to those of skill in the art. Next, the object or objects to  
23 which the texture picture is to be mapped are converted to polygon mesh  
24 representation, if they are not already represented as such, using a suitable tessellation  
25 algorithm. (Emphasis added, Laferriere, column 5, lines 34-45.)

26       Thus, Laferriere discloses that a user selects a texture map. However, as is apparent from this  
27 first citation, the texture maps are specifically selected for the determination of illumination values  
28 that are to be applied to the texture maps. As described in Laferriere, the illumination values are the  
29 result of the predetermined illumination map. But, it is Laferriere's predetermined illumination map  
30 that the Examiner is already asserting is the equivalent of applicant's claim recitation of data that are  
precomputed in step (a). Specifically, the Examiner asserts that applicant's recitation in step (a) of  
"precomputing data defining a behavior of light rays illuminating the object" is disclosed by

1 Laferriere, who teaches “producing illumination maps for at least one object in a scene.” The  
2 Examiner cites column 3, lines 5-9. In Laferriere, the user selection results in a precomputed  
3 illumination map that includes illumination values. Laferriere does not specifically teach that the  
4 illumination maps are based on data defining a behavior of light rays illuminating an object in regard  
5 to a single static viewpoint. Further, Laferriere fails to teach or suggest that a user selection *results* in  
6 the performance of a transformation two-dimensionally. Clearly, a user selecting texture maps, as  
7 taught by Laferriere, is not the same as responding to a user selection to perform “a transformation  
8 two-dimensionally using the plurality of morph maps.” Also, “a transformation two-dimensionally”  
9 is not equivalent to producing an illumination map as taught by Laferriere.

10 The Examiner’s second citation to Laferriere in support of his argument is reproduced below  
11 (wherein the portion cited by the Examiner is underlined):

12 Further, illumination maps are independent of the materials of polygons and/or  
13 the texture pictures used in texture mapping. Thus, once an illumination map is  
determined, the material of objects and or texture pictures can be changed and  
rendered as desired without the need to determine a new illumination map. (Emphasis  
14 added, column 5, lines 18-23.)  
15

16 Applicant does not understand how this portion of the reference teaches or suggests  
17 performing a transformation two-dimensionally. It appears that Laferriere does not teach or suggest  
18 performing such a transformation. Laferriere simply discloses that once an illumination map has  
19 been determined for a scene, textures can be changed and/or substituted as desired. For example, if  
20 desired, a wood grain texture can be re-rendered with a marble texture. In this case, the same  
21 illumination map is employed in the rendering process (Laferriere, column 11, lines 30-39).  
22 However, as is apparent from the citation, Laferriere teaches utilizing the same illumination map and  
23 therefore, Laferriere does not teach or suggest any equivalent to performing a transformation two-  
24 dimensionally, as applicant’s claim recites.

25 Under the section of the Office Action entitled “Response to Arguments,” the Examiner  
26 asserts that the illumination map is itself not rendered, but instead, is used in the final rendered scene  
27 and therefore creates a simulation of illumination information in an image, simulating a rendered  
28 graphical effect of an image. Applicant respectfully points out that applicant’s recitation of a  
29 simulation includes the step of performing a transformation two-dimensionally using the plurality of  
30 morph maps, to produce an output image that simulates the rendered graphical effect. Applicant’s

1 simulation is not based on an illumination map. As noted above, Laferriere and Chen do not teach or  
2 suggest a transformation that is performed two-dimensionally using the plurality of morph maps to  
3 produce an output image that simulates a graphical effect.

4 Accordingly, the rejection of independent Claim 1 under 35 U.S.C. § 103(a) over Laferriere  
5 and further in view of Chen should be withdrawn, for the reasons discussed above, since Laferriere  
6 and Chen do not teach or suggest the recitation of independent Claim 1.

7 Claims 2-15 ultimately depend from independent Claim 1. Because dependent claims  
8 inherently include all of the steps or elements of the independent claim from which the dependent  
9 claims ultimately depend, dependent Claims 2-15 are patentable for at least the same reasons  
10 discussed above with regard to independent Claim 1. Accordingly, the rejection of dependent  
11 Claims 2-15 under 35 U.S.C. § 103(a) over Laferriere and further in view of Chen should be  
12 withdrawn.

13 Discussion of the Rejection of Independent Claim 16

14 Independent Claim 16 is directed towards a method for simulating rendering of graphical  
15 effects in an image displayed in real time. For reasons similar to those discussed above, the cited  
16 references fail to teach a simulated rendering of a selected effect that is based on transforming at least  
17 one input image two-dimensionally using a blending of a plurality of morph maps to produce a  
18 selected effect in an output image.

19 Accordingly, the rejection of independent Claim 16 under 35 U.S.C. § 103(a) over Laferriere  
20 and further in view of Chen should be withdrawn, for the reasons already noted, since Laferriere and  
21 Chen do not teach or suggest the recitation of independent Claim 16.

22 Claims 17-23 ultimately depend from independent Claim 16. Because dependent claims  
23 inherently include all of the steps or elements of the independent claim from which the dependent  
24 claims ultimately depend, dependent Claims 17-23 are patentable for at least the same reasons  
25 discussed above with regard to independent Claim 16. Accordingly, the rejection of dependent  
26 Claims 17-23 under 35 U.S.C. § 103(a) over Laferriere and further in view of Chen should be  
27 withdrawn.

28 Discussion of the Rejection of Independent Claim 24

29 Independent Claim 24 is directed towards a system for simulating a real-time rendering of a  
30 desired graphical effect in an image of an object constituting a portion of a displayed scene on a

1 display in regard to a specific viewpoint that remains static. Claim 24 recites functions (c)(i), (c)(ii)  
2 and (c)(iii) that are generally consistent with the steps of independent Claim 1. Thus, for the reasons  
3 discussed above in connection with independent Claim 1, independent Claim 24 patentably  
4 distinguishes over the combination of Laferrriere and Chen, because these references do not teach or  
5 suggest that in response to a user action, a transformation is performed or that a real-time rendering  
6 of a desired graphical effect is simulated as recited in the claim.

7 Accordingly, the rejection of independent Claim 24 under 35 U.S.C. § 103(a) over Laferrriere  
8 and further in view of Chen should be withdrawn, for the reasons given above.

9 Claims 25-36 ultimately depend from independent Claim 24. Because dependent claims  
10 inherently include all of the steps or elements of the independent claim from which the dependent  
11 claims ultimately depend, dependent Claims 25-36 are patentable for at least the same reasons  
12 discussed above with regard to independent Claim 24. Therefore, the rejection of dependent  
13 Claims 25-36 under 35 U.S.C. § 103(a) over Laferrriere and further in view of Chen should be  
14 withdrawn.

15 In view of the Remarks set forth above, it will be apparent that the claims remaining in this  
16 application define a novel and non-obvious invention, and that the application is in condition for  
17 allowance and should be passed to issue without further delay. Should any further questions remain,  
18 the Examiner is invited to telephone applicant's attorney at the number listed below.

19 Respectfully submitted,

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21

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24 SKM/RMA:elm

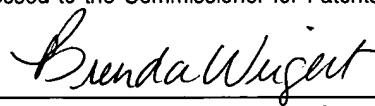
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